KLB-SYSTEM POLYURETHAN
PU 405

Low-emission, flexible 2-component polyurethane coating for decorative flooring, largely light-stable

Packaging units

Article no.	Packaging	Content (kg)	Units/pallet
AK6082-50	Bucket combo	10.00	30
AK6082-30	Hobbock combo	30.00	12

Product characteristics

Mixing ratio parts by weight	A : B = 3 : 1
Mixing ratio parts by volume	A : B = 100 : 44
Processing time	10 °C / 50 °F : 40 - 50 min. 20 °C / 68 °F : 20 - 25 min. 30 °C / 86 °F : 15 - 20 min.
Processing temperature	Minimum 10 °C / 50 °F (room and floor temperature)
Curing time (accessibility)	10 °C / 50 °F : 30 - 36 hrs. 20 °C / 68 °F : 18 - 24 hrs. 30 °C / 86 °F : 15 - 20 hrs.
Curing	2 - 3 days for mechanical load at 20 °C / 68 °F 7 days for chemical resistance at 20 °C / 68 °F
Further coatings	After 18 - 24 hours, but not longer than 48 hours at 20 °C / 68 °F
Consumption	Approx. 2.4 - 2.8 kg/m² for 2 mm layers
Layer thickness	Approx. 1.5 - 2.5 mm
Colours	KLB-Standard Colour – see chart. Other colours upon request!
Shelf life	12 months (originally sealed)

Product description

KLB-SYSTEM POLYURETHAN PU 405 is a light-stable, pigmented 2-component polyurethane coating which cures without shrinkage. **KLB-SYSTEM POLYURETHAN PU 405** is suitable for producing pale-coloured floor coatings on decorative interior surfaces.

The flexible cured coating offers special walking comfort. The coating is especially suitable for interior areas with a high demand to the optical appearance, e.g. living rooms, offices, doctor’s offices, fitness centers and wellness areas, schools, and many more. The coating is not suitable for industrially used areas with an increased mechanical load.

The flexible floor coating is applicable for layers starting at 1.5 mm. It is also suitable for deformable substrates, like mastic asphalt, or even older substrates, like reconstruction areas.

KLB-SYSTEM POLYURETHAN PU 405 offers good resistance to many common household chemicals, water, saline solutions, diluted acids and bases. Conditionally resistant to solvents.

The coating is available in all KLB standard colours; the usage is especially reasonable when pale colours are required.

KLB-SYSTEM POLYURETHAN PU 405 offers good abrasion resistance qualities. Sealing is generally recommended with suitable top sealers like **KLB-SYSTEM POLYURETHAN PU 805 E** or **KLB-SYSTEM POLYURETHAN PU 806 E**. It is necessary to use the transparent sealer **KLB-SYSTEM POLYURETHAN PU 805 E** when scattering with **partiColor®-Chips** (flakes).

Note: when a low-emission coating with DIBt® accreditation according to AgBB is required, use **KLB-SYSTEM POLYURETHAN PU 410**.

Area of application

- Comfortable, jointless floor coating for light mechanical load up to medium mechanical load for resident and commercially used areas without any industrial load.
- For decorative, non-yellowing, smooth floor surfaces, e.g. show rooms, living rooms, and office spaces.
- Use as coating on inelastic substrates and substrates susceptible to deformation, like mastic asphalt, wooden and mixed material substrates.

Product features

- largely light-resistant
- self-levelling
- convenient processing
- elastic
- solvent-free
- results in decorative surfaces
- free of deleterious substances against varnish

Technical data

Viscosity - Component A+B	5200	mPas	DIN EN ISO 2811-2 (23 °C / 73.4 °F)
Solid content	> 99.7	%	KLB method
Density - Component A+B	1.5	kg/l	DIN EN ISO 2811-2 (20 °C / 68 °F)
Weight loss	0.2	weight-%	KLB method after 28 days
Water absorption	< 0.2	weight-%	DIN 53495
Breaking strain	97	%	DIN EN ISO 527-3
Shore-hardness D	51	-	DIN 53505 (after 28 days)
Abrasion (Taber Abraser)	30	mg	ASTM D4060 (CS10/1000)

The values established in tests are average values. Deviations from the product specification may occur.

Tests

External test certificates are available:

- Slip resistance grade R9 and R10 possible, according to DIN 51130 and BGR 181.

Note:

Please ask for the tested system build-up!

Build-up of coats

Preparation of mineral substrates

- Prepare the substrate like concrete, cement screed, etc. mechanically, preferably by shot-blasting.

System structure **without intermediate sanding**

- Prime with one of the recommended KLB priming resins, like **EP 50, EP 55, EP 51 RAPID S**, consumption approx. 0.3 - 0.4 kg/m².
- If required: apply a scratch coat with **EP 50, EP 55, EP 51 RAPID S** and mixed sand **KLB-Mischsand 2/1**. Mixing ratio 1 : 0.8 parts by weight, consumption approx. 0.8 - 1.2 kg/m² (mixture).
- Alternatively, already after priming, a scratch coat with **PU 421** or **PU 405** can be applied without sanding by adding approx. 20 - 30 % of quartz sand 0.1/0.3 mm, consumption approx. 0.8 - 1.2 kg/m².

Important: it's only with the primers **EP 50** or **EP 55,** that **PU 405** can be applied directly without sanding after a curing time of at least 14 to max. 48 hours (at 20 °C / 68 °F). Using **EP 51 RAPID S**, the application of **PU 405** can take place without sanding after at least 4 to max. 24 hours (at 20 °C / 68 °F), provided the surface is pore-free. In the case of other primers or changed time sequences, intermediate sanding must be carried out.

- Apply **PU 405**, e.g. with a toothed trowel **Toothed Blade RS4** or Pajarito 48, consumption 2.4 - 2.8 kg/m². After 10 to 20 minutes, roll out with a pinch roller.

Substrate preparation of mastic asphalt

- Prepare the substrate mechanically, preferably by shot-blasting.
- This is followed directly by the application of a scratch coat with **PU 421** or **PU 405** and approx. 20 - 30 % of quartz sand 0.1/0.3 mm, consumption approx. 0.8 - 1.2 kg/m². The surface must be pore-less for any subsequent coating.
- Apply **PU 405**, e.g. with a toothed trowel **Toothed Blade RS4** or Pajarito 48, consumption 2.4 - 2.8 kg/m². After 10 to 20 minutes, roll out with a spiked roller.

Decorative, low-emission top sealing

- For decorative floors, apply a transparent or opaque top sealer with **PU 805 E or PU 806 E** which are low-emission when used in the system, consumption 0.150 - 0.180 kg/m². By mixing structuring agent **Strukturmittel RHX** into **PU 805 E** or **PU 806 E** - or by using **PU 805 E R10** or **PU 806 E R10**, the slip resistance can be adjusted up to grade R11.
- Scattering with **partiColor®-Chips** (flakes) is possible with a subsequent transparent sealer.

System structure **with intermediate sanding**

- Prime with e.g. **EP 52 Spezialgrund,** consumption approx. 0.3 - 0.4 kg/m².
- Openly sanding the fresh surface with quartz sand 0.3/0.8 mm, consumption approx. 0.5 - 1.0 kg/m².
- This is followed directly by the application of a scratch coat with **PU 421** or **PU 405** and approx. 20 - 30 % of quartz sand 0.1/0.3 mm, consumption approx. 0.8 - 1.2 kg/m². The surface must be pore-less for any subsequent coating.
- Apply **PU 405**, e.g. with a toothed trowel **Toothed Blade RS4** or Pajarito 48, consumption 2.4 - 2.8 kg/m². After 10 to 20 minutes, roll out with a spiked roller.

Decorative transparent or pigmented top sealer.

Substrate

The substrate to be coated must be even, dry, free of dust, sufficiently resistant to tension and compression as well as be free from weakly-bonded components or surfaces. Materials impairing adhesion such as grease, oil and paint residues should be removed with suitable measures. For concrete, moisture content must not exceed 4.5 CM-%, remaining residual humidity. The possibility of moisture ingress

from the rear must be permanently excluded. Observe the information issued by the trade associations, e.g. the most recent versions of BEB worksheets KH-0/U and KH-0/S as well as the notes provided in the product information for the recommended base coats, like **EP 50, EP 51 RAPID S, EP 52 Spezialgrund** and **EP 55**. The substrates to be coated should be prepared mechanically. The prepared area must be saturated, pore-free and primed carefully. If the substrate has not been primed to be pore-free, bubbles and pores can develop in the coating due to air rising from the substrate. In case of doubt, we recommend testing on a trial surface. The surface can be scattered openly with approx. 0.5 - 1.0 kg/m² of quartz sand 0.3/0.8 mm in order to improve adhesion.

Mixing

Combo-packaging will be supplied in the correctly measured mixing ratio. The package of Component A has sufficient volume for the entire packaging unit. Empty all of the hardener compound B into the resin A package. Blend with a slow speed mixer (200 - 400 r/pm) for at least 2 - 3 minutes until a homogeneous, streak-free compound forms. To prevent mixing errors, empty ("repot") the entire resin/ hardener mixture into a clean container and mix it once again briefly.

Processing

Process the material immediately after mixing and spread it over the prepared surface with a coating knife or toothed trowel in a uniform layer. The product is adjusted for optimum deaeration, however, rolling with a spiked roller is recommended to improve the wetting of the substrate, to optimise levelling and to remove remaining air bubbles. This should be carried out time-delayed after 10 - 20 minutes. To work seamlessly, always work “fresh-in-fresh” and define work areas before starting.

Sealing of the **PU 405** covering layer must be done with clean overshoes. Nail shoes must not be used.

Polyurethane coatings are sensitive to moisture when fresh, the humidity specifications must therefore be observed. Coating dew-damp substrates and the use of damp sand as well as perspiration will cause the material to foam and must be avoided. Therefore, the conditions should be measured before starting work.

Floor and air temperature must not fall below 10 °C / 50 °F and humidity should not exceed 75 %. The material to be processed must be at room temperature during processing.

Within the recommended processing conditions, the floor temperature may be a maximum of 3 °C colder than the ambient room air temperature to exclude a dew point on the surface to be coated and the fresh coating.

If a dew-point situation arises, regular cross-linking will not be possible with hardening poblems and foaming to occur. The technical properties may deviate from those specified. Do not work in direct sunlight or on strongly heated surfaces, as the processing time is greatly reduced and bubble formation is possible.

Special remarks: for a slightly thickened **PU 405,** use only our suspending agent **KLB-Stellmittel 5 FT**. Other products may disturb the curing.

Coloured products should always belong to the same batch and be used on the same surface, as slight colour deviations in different batches cannot be excluded due to the raw material. The batch number is indicated on the container labels. For certain colour shades - especially white, yellow and orange or pastel light shades - the recommended layer thicknesses must be observed to ensure opacity.

Colour changes, loss of gloss or yellowing may occur with certain light and weather influences and with prolonged and intensive use.

	To prevent wear and tear, suitable chair castors or floor protection mats must be used with swivel chairs/office swivel chairs or other wheeled furniture.
Cleaning	To remove fresh contamination and to clean tools use thinner **VR 28** or **VR 33** immediately. Hardened material can only be removed mechanically. Separate cleaning and care recommendations are available for cleaning floors produced with KLB coatings and sealers.
Storage	Store in dry and at frost-free conditions. Ideal storage temperature is 10 - 20 °C / 50 - 68 °F. Bring to a suitable processing temperature before application. Tightly re-seal opened packages and use up the content as soon as possible.
Special remarks	The product is regulated by the German Ordinance on Hazardous Substances (GefStoffV), the German Ordinance on Industrial Safety and Health (BetrSichV), and transport regulations for hazardous goods. The necessary information is contained in the DIN Safety Data Sheet. Observe all identification information on the container label! GISCODE: PU40 **Indication of VOC-content:** (EG-Regulation 2004/42) Maximum Permissible Value 500 g/l (2010,II,j/lb): Ready-for-use product contains < 500 g/l VOC.

CE marking

CE
KLB Kötztal Lacke + Beschichtungen GmbH Günztalstraße 25 FRG-89335 Ichenhausen
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PU405-V1-062014
DIN EN 13813:2003-01
Synthetic resin screed mortar DIN EN 13813: SR-B1.5-AR0.5-IR20

Fire behaviour	E_{fl}-s1
Emission of corrosive substances	SR
Wear resistance BCA	AR 0.5
Adhesive tensile strength	B 1.5
Impact resistance	IR 20

Please consider the latest version of this product information on our website.